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AMENDMENTS TO THE CLAIMS

1. (Original) A cathode system comprising carbon cathodes and collectors for the electrolytic production of aluminum, wherein the cathode system is divided in the direction of its long axis on the side of the power conduction from the cathode to the collector into at least two parts having a differing electrical resistance in such a way that the electrical resistance from the ends of the collector to the part of the cathode facing the collector at the ends of the cathode is at least 1.2 times the electrical resistance from the ends of the collector to the part of the middle of the length of cathode facing the collector, where the division of the cathode system into at least two parts of differing electrical resistance is achieved by use of different contact compositions between collector and cathode and/or by dividing the collector in the direction of its long axis on the side of the power conduction to the cathode into at least two parts of differing electrical resistance.
2. (Original) A cathode system as claimed in claim 1, wherein at least two different contact compositions are used for establishing electrical contact between cathodes and collectors, with the boundary between zones of different contact compositions running perpendicular to the long axis of the collectors, and the contact resistance between collector and cathode in the middle of the length of the cathode is lower than the contact resistance in the region of the ends of the cathode.
3. (Original) A cathode system as claimed in claim 2, wherein the contact composition in the region of the middle of the cathode length is cast iron.
4. (Original) A cathode system as claimed in claim 2, wherein the contact composition used in the region of the ends of the cathode length is selected from among tars, tar pitches, synthetic resins based on epoxy resins and/or phenolic resins and adhesives based on epoxy resins and/or phenolic resins filled with electrically conductive particles.
5. (Original) A cathode system as claimed in claim 4, wherein the electrically conductive particles are selected from among particulate carbon and metal particles in the form of powders, shoot, fibers, whiskers and/or platelets.

6. (Original) A cathode system as claimed in claim 1, wherein the collectors are divided in the direction of their long axis on the side of the power conduction to the cathode into at least two parts having differing electrical resistances in such a way that the electrical resistance from the ends of the collector to the zone of the collector adjacent to the ends of the cathode is at least 1.2 times the electrical resistance from the ends of the collector to the zone of the collector adjacent to the middle of the cathode.

7. (Original) A cathode system as claimed in claim 6, wherein the metallic material of the collector is uniform and the collector is divided into zones of differing cross section which are insulated from each other.

8. (Original) A cathode system as claimed in claim 6, wherein at least two different metals are used for constructing the collector.

9. (Original) A cathode system as claimed in claim 6, wherein a zone of the collector having a higher resistance is configured in the form of a plate facing the cathode side.

10. (Original) A cathode system as claimed in claim 6, wherein a zone of the collector having a higher resistance is configured in the form of a sheath which completely covers the side facing the cathode and the areas of the collector which are in physical contact with the cathode.

11. (Original) A cathode system as claimed in claim 6, wherein the collector is covered by a sheet-like insulator on the areas which face the cathode and consist of zones of differing resistance up to the point where the collector establishes electrical contact.

12. (Original) A process for producing a cathode system as claimed in claim 2, which comprises introducing at least two contact compositions of differing electrical resistance into the recess on the underside of the cathode, with the electrical resistance of the contact composition in the zone facing the middle of the cathode length being lower than that of the contact composition of the zone facing the end of the cathode.

13. (Original) A process for producing a cathode system as claimed in claim 3, wherein a contact composition comprising tars, tar pitches, synthetic resins based on epoxy resins and/or

phenolic resins or adhesives based on epoxy resins and/or phenolic resins filled with electrically conductive particles is used in the region of the ends of the cathode and contact in the region of the middle of the cathodes is established by filling the join with cast iron.

14. (Original) A process for producing a cathode system as claimed in claim 6, wherein an angular metal bar is machined so as to remove material from the surface of at least one area facing the cathode and the resulting depression is covered in an electrically insulated fashion with a metal plate or metal sheath which is flush with the original dimension.

15. (Original) A method of use of a cathode system as claimed in claim 1 in the electrolytic production of aluminum metal.